ABSTRACT OF THE DISCLOSURE

In one aspect, the invention includes a method of forming a silicon dioxide layer, comprising: a) forming a high density plasma proximate a substrate, the plasma comprising silicon dioxide precursors; b) forming silicon dioxide from the precursors, the silicon dioxide being deposited over the substrate at a deposition rate; and c) while depositing, etching the deposited silicon dioxide with the plasma at an etch rate; a ratio of the deposition rate to the etch rate being at least about 4:1. In another aspect, the invention includes a method of forming a silicon dioxide layer, comprising: a) forming a high density plasma proximate a substrate; b) flowing gases into the plasma, at least some of the gases forming silicon dioxide; c) depositing the silicon dioxide formed from the gases over the substrate; and d) while depositing the silicon dioxide, maintaining a temperature of the substrate at greater than or equal to about 500° C. In yet another aspect, the invention includes a method of forming a silicon dioxide layer, comprising: a) forming a high density plasma proximate a substrate; b) flowing gases into the plasma, at least some of the gases forming silicon dioxide; c) depositing the silicon dioxide formed from the gases over the substrate; and d) not cooling the substrate with a coolant gas while depositing the silicon dioxide.